AMERICAN SOCIETY OF SAFETY PROFESSIONALS
India Chapter

ASSP-India Newsletter

AMERICAN SOCIETY OF SAFETY PROFESSIONALS
Working together for a safer, stronger future.

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ASSP India – Newsletter Committee
Sandip Mukherjee

Message from the President's Desk….

August 20, 2018

Dear colleagues,

Greetings!

In the last issue I shared my thoughts on occupational health concerns of workers in the informal sector, particularly for the app cab drivers.

I was recently going through a WHO publication advocating "Health in all Policies (HiAP)". Though this is primarily aimed at the Governments and the policies made by the Governments across various countries of the world, (http://www.who.int/healthpromotion/conferences/8gchp/8gchp_helsinki_statement.pdf). In fact those recommendations and commitments could also dovetail well for corporations across businesses. Business leaders should recognize possible health consequences while taking every policy decisions, which in turn affecting thousands of people, some way or the other. This is applicable to small and medium sized companies to large multi-national corporations having operations in several countries. We as safety professionals should be able to network with the leadership as well as the team, to align with operations frameworks which are pro-health and facilitate the process.

We in ASSP India Chapter, among other efforts, also trying to collaborate with global professional organizations. This would help the members to enhance their horizon of network, share experiences and support each other on the way of progress toward a better future. International Commission on Occupational Health (ICOH) is one such revered organization, to mention with.

Every year 15th September is observed as "Engineers' Day" in India to commemorate the birthday of Bharat Ratna Mokshagundam Visvesvaraya. This year also, ASSP India Chapter members are encouraged to participate in this event and take this opportunity to promote our mission of "protecting people, property and the environment".

With best wishes and warm regards,

Dr. Krishna Nirmalya Sen,

President
ASSP India Chapter

Content:

Editor's Corner:

Dear Reader,

We are presenting the 54th Issue of ASSP India Chapter Newsletter.

Robust isolation and de-isolation practices are a mandatory element for ensuring safety at the workplace, as these practices help to eliminate the accidental activation of plant / equipment or uncontrolled release of energy or an unexpected start-up of plant / equipment during inspection, testing, sampling, maintenance, servicing, re-instatement and set-up tasks. When carrying out such tasks, it is mandatory to ensure that all energy sources are properly de-energized, isolated, blocked and / or dissipated and upon completion of the tasks, the energy sources are de-isolated upon requisite recording and approvals.

The greater the potential hazard, the more effective, secure and controlled the isolation should be.

To avoid the potential for human failure during isolations it is important that we understand and act upon this knowledge. Hence furnishing an article on control of hazardous energy.

Also the brief on forthcoming important days in health and safety calendar for the month of September is furnished for ready reference along with health tips on role of circadian rhythms on our health and wellbeing.

Let us welcome the new member who has joined just last month with our chapter. Do not skip your favorite quiz at the end of the newsletter.

Do keep on sending interesting articles on OH&S for publication. Happy reading.

Warm Regards to all our Readers,
Sandip Mukherjee,
Chair – Newsletter (ASSE India Chapter)

Control of Hazardous Energy Lockout and Tagout

LOTO stands for lockout/tagout. When done properly before equipment service or maintenance, lockout/tagout procedures control hazardous energy and protect workers from harm.

What is hazardous energy?

Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other sources in machines and equipment can be hazardous to workers. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury or death to workers.

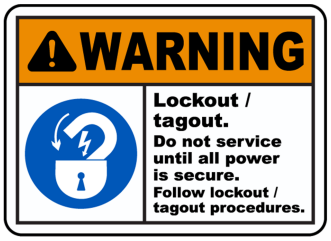
The Purpose of Lockout / Tagout and LOTO Safety

When machines or equipment are being prepared for service or maintenance, they often contain some form of "hazardous energy" that can cause harm to people in the area.

When we talk about hazardous energy, we mean any type of energy that can be released and might harm a person. This could include energy of the following types:

- Chemical
- Electrical
- Hydraulic
- Mechanical
- Pneumatic
- Thermal
- Other sources of energy

Without the use of proper LOTO safety procedures, the serviced equipment can unexpectedly start up or otherwise release these forms of energy. This can lead to injuries and even death to the people working on the machine and even to others working in the area or living in the community.



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Consider just a few examples:

- A worker is servicing a press, another worker comes by and starts the press, and the service worker is caught up in the press, causing an amputation
- Workers are repairing a connection in piping, and somewhere up that same line another worker opens a valve, sending fluids down the pipe that ultimately spill on and burn the maintenance workers
- A conveyor jams, a worker reaches in to try to clear the jam, the conveyor jam is suddenly and unexpectedly freed, and the worker is crushed as a result
- A worker is servicing a machine, and at the same time internal wiring in the machine shorts, causing the maintenance worker to be shocked.

All of these are examples of hazardous energy causing harm. And that's what LOTO safety is all about–making these types of hazardous energy are controlled so they're never released and never cause harm.

Lockout/Tagout is Part of an Energy Control Program

Every workplace should have an energy control program in place, with LOTO safety being one part of that program. An energy control program includes established procedures for using locks and tags; the locks and tags themselves; training workers on hazards of hazardous energy and lockout/tagout procedures, policies, and equipment; and periodic reviews and inspections of the system (at least annually).

Six Steps of LOTO Safety and Lockout/Tagout Procedures

A lockout/tagout procedure should include the following six steps:

1. Preparation
2. Shutdown
3. Isolation
4. Lockout/tagout
5. Stored energy check
6. Isolation verification

Let's look at each of these steps of LOTO safety more closely in the sections below.

Lockout/Tagout Step 1: Preparation

The first step of locking and tagging out equipment for service and maintenance is to prepare.

During the preparation phase, the authorized employee must investigate and gain a complete understanding of all types of hazardous energy that might be controlled. In addition, it's important to identify the specific hazards and of course means for controlling that energy.

Lockout/Tagout Step 2: Shut Down

With planning complete, the actual process of powering down and locking out machines begins.

At this point, it's time to shut down the machine or equipment that will be serviced or maintained.

Another important part of this step is to inform any employee affected by the shutdown, even if they won't play a role in the service or maintenance.

Lockout/Tagout Step 3: Isolation

The next step of the lockout/tagout procedure is to isolate the machine or equipment from any source of energy.

This may mean any number of things, such as turning off power at a breaker or shutting a valve.

Lockout/Tagout Step 4: Lockout/Tagout

With the machine or equipment isolated from its energy source the next step of lockout/tagout is to actually lock and tag out the machine. It's fair to say that this entire six-step process takes its name from this step.

During this step, the authorized employee will attach lockout and/or tagout devices to each energy-isolating device. The point is to apply the lockout device on the energy-isolating device in a way so it says in the "safe" position and cannot be moved to the unsafe position except by the person performing the lockout.

Tagout refers to applying a tag on the device as well. This tag includes the name of the person who performed the lockout and additional information.

Lockout/Tagout Step 5: Stored Energy Check

Even after the energy source has been disconnected, in step 3 of the lockout safety process, and the machine has been locked out, in step 4, that doesn't entirely guarantee that there's no hazardous energy still stored within the machine or that it's safe to perform maintenance.

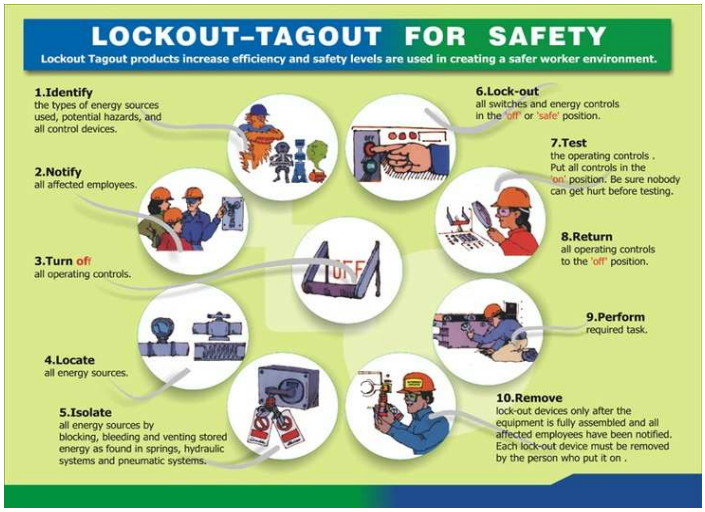
At this time, it's important to look for any hazardous energy that's been "stored" within the machine, or any "residual" energy. During this phase, any potentially hazardous stored or residual energy must be relieved, disconnected, restrained, or made non-hazardous in some other way.

Lockout/Tagout Step 6: Isolation Verification

This last step is all about making sure.

Yes, you've shut down the machines, isolated them from their source of power, locked them out, and checked for hazardous stored energy. But now's the time to double-check that you did it all right and it's now safe to work on the machine or equipment.

At this point, an authorized employee verifies the machine has been properly isolated and de-energized.



Source: https://www.convergencetraining.com; https://www.osha.gov

Important days in Safety, Health and Environmental Calendar of September, 2018

International Literacy Day 08 Sep 2018

Since 1967, International Literacy Day celebrations have taken place annually around the world to remind the public of the importance of literacy as a matter of dignity and human rights, and to advance the literacy agenda towards a more literate and sustainable society. The International Conference on 'Literacy and Skills Development' will (Paris, 7 September 2018) will explore ways to make effective connections between literacy and technical and vocational skills in policies, practice, systems and governance.

Focusing on youth and adults within the lifelong learning framework, the effective linkages between literacy and skills will be explored.

The renewed focus on integrated approaches is grounded, on the one hand, in persistent literacy and skills challenges, and, on the other, in the new skills demands and impetus generated by the current context of globalization, digitization and the 2030 Agenda for Sustainable Development.

Source: https://en.unesco.org

Engineer's Day 15 Sep 2018

Year 2018 will mark the 50th anniversary of the Engineers Day in India and 157th birth anniversary of Sir Mokshagundam Visvesvarayya. It will be celebrated on 15 September, Saturday.

Sir MV was internationally popular for his brilliance and his great achievement in harnessing water resources in India. This is also important to know that all over the world engineers' day is celebrated on different dates. Engineers are the professionals who design, build and test the construction, raw materials and process of the project; they also consider the restrictions imposed by the regulation, feasibility, safety and cost of the project. Engineers play a very significant role in every walk of our lives. They convert the theoretical knowledge of basic sciences into actual products and thus make our lives easy. Engineers possess versatile minds and help in filling the gap between science, technology and the community. Engineers in India contribute greatly to the nation's technological and industrial growth.

HOW ENGINEERS' DAY IS CELEBRATED

Different cities have different methods of celebrating Engineer's Day. Engineering is a vast field with different specialization such as electrical, technical, computer, mechanical, etc. and thus different departments call for celebration in different style. The celebration methods may also vary from company to company. While government companies follow the annual theme for the Engineers' day, private companies may either follow the theme or may decide their own theme. Engineers play a great role in the advancement and economic growth of any company and thus it doesn't matter how they celebrate the annual day, what is

important that they must rejoice the annual function to keep motivated themselves and continue with the great work they do for general public.

SIGNIFICANCE OF ENGINEERS' DAY CELEBRATION IN INDIA

Engineers' day is celebrated for the great works of Sir MV towards the development of various places which are the most developed cities of today's India. Sir MV is an international hero, recognized for his mastermind in harnessing water resources; he had successfully designed and constructed several river dams, bridges and revolutionized the irrigation system in India by implementing irrigation and drinking water system all over India.

Among all the developing countries, India is one of the prime exporters of light and heavy engineering goods. India produces a wide range of items. The bulk of capital goods required for mining equipment, steel & petrochemical plants, cement, fertilizer, power projects are made in India. The engineers of India are also involved in making equipment for irrigation projects, construction machinery, cotton textile & sugar mill machinery, diesel engines, transport vehicles, tractors, etc. Thus, the role of Engineers in a developing India is not only diverse, but it is also very significant.

ENGINEERS DAY HISTORY

India as a nation reportedly creates approximately 20 lakhs engineers every year including all the fields and disciplines such as computer science, electronics, civil, electrical, technical, mechanical, etc. The engineers celebrate engineers' day every year on 15th September in the honor of Sir Mokshagundam Visvesvaraya, one of the greatest engineers of his time, a great educationist, Statesman, a scholar and indeed the most celebrated engineer India has produced till date. Sir MV has been the personification of everything that a country needs to endeavor for a better future. Thus, the Engineers' day is marked as a tribute to his achievements and will towards growth and development.

Source: www.indiacelebrating.com

International Day for the Preservation of the Ozone Layer 16 Sep 2018

International Day for the preservation of Ozone Layer is an annual observance. It is celebrated on 16th of September every year to spread awareness and bring attention to the depletion of the ozone layer. This day is celebrated by organizing seminars, speeches, and national as well as international exhibitions worldwide. In schools, the annual science day is also organized and a lot of awareness is created by the means of media as well.

What will happen to Earth if the Ozone Layer is not preserved?

Ozone layer is a layer of ozone molecules, which is found particularly in the stratosphere layer of atmosphere ranging between 20 to 40 km. Ozone layer is formed in the atmosphere when the ultraviolet rays from the sun break a single oxygen atom. The oxygen atom then merges with oxygen and thus forms the final ozone molecule. The problem that causes the depletion of this layer occurs when the harmful sun radiations after sticking the earth surface becomes unable to leave the atmosphere.

Most scientists agree that without the ozone layer, life on Earth will cease to exist. Water and land life would suffer as without the protection from the ozone layer people, sun, plant life and animals will be destroyed. Even the underwater life will be destroyed with the ozone depletion. The depletion disturbs the equilibrium, there are more summers than winters, the winters also arrive irregularly, and the icebergs start melting. Moreover, the depletion of this layer is a health and nature hazard.

HISTORY OF INTERNATIONAL DAY FOR THE PRESERVATION OF THE OZONE LAYER (WORLD OZONE DAY)

Since 1994, 16th of September is annually celebrated as the International Day for the preservation for Ozone layer with a lot of enthusiasm in all the countries. This day was designated as the same by a declaration which was made by United Nations. It was done to commemorate the signing of Montreal Convention against the depletion of ozone layer in the year 2000 on 19th of December.

The Montreal Convention is an international treaty to safeguard the ozone layer by phasing out the harmful substances and gases all across the world. The participation in the International Day to protect ozone layers has always seen a huge and massive rise since 1995, which was the first year when this day was celebrated by the people worldwide.

HOW WORLD OZONE DAY IS CELEBRATED?

International Day for the Preservation of the Ozone Layer is celebrated in India by students with a lot of fervor and spirit. The day witnesses huge rallies launched on the sidetracks of city roads, students giving speeches on the annual ozone day which is often celebrated on this day, college students organizing state level campaigns to advocate on this topic and thereby deducing different measures to control the depletion of ozone layer. Indian Government provides recognition and scholarships to the discreet people who invent creative ways to cut down the emission of harmful gases and substance which is not only economic but permanent too.

The ministry of Environment and Public Health launches certain programs to collect the new data of the gases present in the atmosphere to keep the citizens abreast of recent changes that the Earth is facing. These updated stats are then given to different universities to study them comprehensively and provide substantial solutions to the issue.

SUGGESTIONS FOR CELEBRATING INTERNATIONAL DAY FOR PRESERVATION OF THE OZONE LAYER IN INDIA

Environment is a very detailed term, it comprises of everything that is above and below us. The atmosphere above us comprises of different layers and the one called stratosphere is also called the Ozone Layer. Due to a lot of commotion in today's environment, the balance between what is above and below us is highly disturbed. A lot of development and modernization in our country has increased the danger to our

people environmentally. The impact has been on the health and integrity of our organic resources such as soil, land, forests, water. Suggestions for celebrating International Day of Preservation of the Ozone Layer in India include;

- On the World Ozone day, maximum population should practice extensive cultivation of trees and help in minimizing the sources of substances that contribute to ozone depletion. All the people should pledge to use only organic products and cut down the usage of the products that cause the depletion of the ozone layer.
- Focus should be shifted from identifying the environmental problems at higher level to regional levels. Also people should be answerable to the law enforcing agencies if they are involved in any activity that leads to environmental issues.
- Through the medium of this day, introduction to clean technologies should be encouraged.
- People should be advised on checking the ingredients of the fire extinguishers before they buy them, they should avoid buying aerosols products which contain materials having chlorofluorocarbons, slowly everyone should dispose the refrigerators, freezers, and air conditioners from back 1990's.
- In a developing country like India, more emphasize should be given on limiting the private vehicle driving, there should be higher usage of eco-friendly products, total ban on pesticides which contribute to ozone depleting, strict norms and conditions should be regulated on rocket launch and least use of chemicals should be promoted on this day.

Source: www.indiacelebrating.com

International Day of Peace 21 Sep 2018

Each year the International Day of Peace is observed around the world on 21 September. The General Assembly has declared this as a day devoted to strengthening the ideals of peace, both within and among all nations and peoples.

The United Nations Member States adopted the 17 Sustainable Development Goals in 2015 because they understood that it would not be possible to build a peaceful world if steps were not taken to achieve economic and social development for all people everywhere, and ensure that their rights were protected. The Sustainable Goals cover a broad range of issues, including poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, environment and social justice.

Sustainable Development Goal 16 "Peace, Justice and Strong Institutions" calls for promoting peaceful and inclusive societies for sustainable development, providing access to justice for all and building effective, accountable and inclusive institutions at all levels.

A peaceful society is one where there is justice and equality for everyone. Peace will enable a sustainable environment to take shape and a sustainable environment will help promote peace.

The theme for the International Day of Peace in 2018 is **"The Right to Peace - The Universal Declaration of Human Rights at 70"**

The theme celebrates the 70th anniversary of the Universal Declaration of Human Rights.

The Universal Declaration of Human Rights is a milestone document in the history of human rights. Drafted by representatives with different legal and cultural backgrounds from all regions of the world, the Declaration was adopted by the United Nations General Assembly in Paris on 10 December 1948 as a common standard of achievement for all peoples and all nations.

Source: www.un.org

World Heart Day 29 Sep 2018

In May 2012, world leaders committed to reducing global mortality from non-communicable diseases (NCDs) by 25% by 2025. Cardiovascular disease (CVD) is accountable for nearly half of all NCD deaths making it the world's number one killer. World Heart Day is, therefore, the perfect platform for the CVD community to unite in the fight against CVD and reduce the global disease burden.

Created by the World Heart Federation, World Heart Day informs people around the globe that CVD, including heart disease and stroke, is the world's leading cause of death claiming 17.5 million lives each year, and highlights the actions that individuals can take to prevent and control CVD. It aims to drive action to educate people that by controlling risk factors such as tobacco use, unhealthy diet and physical inactivity, at least 80% of premature deaths from heart disease and stroke could be avoided.

World Heart Day is a global campaign during which individuals, families, communities and governments around the world participate in activities to take charge of their heart health and that of others. Through this campaign, the World Heart Federation unites people from all countries and backgrounds in the fight against the CVD burden, and inspires and drives international action to encourage heart-healthy living across the world.

What is CVD?

The term 'cardiovascular disease' (CVD) refers to any disease of the heart, vascular disease of the brain, or disease of the blood vessel. The most prevalent cardiovascular diseases include coronary heart disease (eg heart attack) and cerebrovascular disease (eg stroke). Controlling key risk factors such as diet, physical activity, tobacco use and blood pressure may reduce an individual's risk of CVD.

Your heart is the size of your fist and the strongest muscle in your body. Your heart started beating about three weeks after you were conceived. If you live to be 70 your heart will have beaten two and a half billion times.

The heart can become vulnerable from habitual risk factors like smoking, eating an unhealthy diet or putting it under stress. The system can also be weakened from a pre-existing

heart condition. When your heart's functions become compromised, this is known as cardiovascular disease, a broad term that covers any disorder to the system that has the heart at its center.

According to the Global Atlas on cardiovascular disease prevention and stroke, over 17.5 million deaths each year are caused by CVD. Ischemic heart disease (eg heart attacks) is responsible for 7.3 million of the total CVD deaths and cerebrovascular disease (eg stroke) is responsible for 6.2 million of the total CVD deaths. This makes it the number one cause of death in the world today.

World Heart Day 2018
A promise as an individual to cook and eat more healthily, to do more exercise and encourage your children to be more active, to say no to smoking and help your loved ones to stop. A promise as a healthcare professional to save more lives. A promise as a politician to implement an NCD action plan.

A simple promise… for **MY HEART, for YOUR HEART, for ALL OUR HEARTS.**

Cardiovascular disease is the world's number one killer today. But it doesn't need to be this way. By making just a few small changes to our lives, we can reduce our risk of heart disease and stroke, as well as improving our quality of life and setting a good example for the next generation. It's about saying to yourself, the people you care about and individuals all around the world, "what can I do right now to look after MY HEART… and YOUR HEART?"
Source: www.world-heart-federation.org

Health Tips

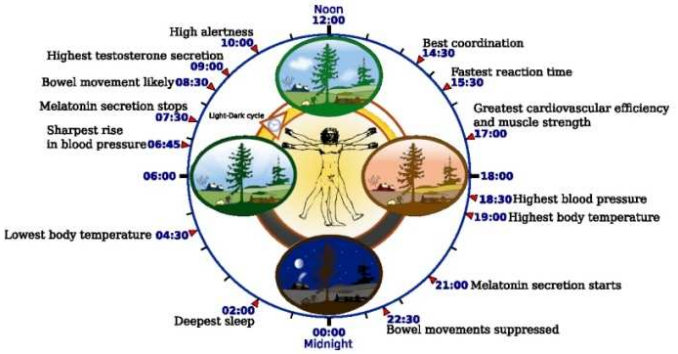
CIRCADIAN RHYTHMS – HOW SLEEP WORKS

All animals and plants have a built-in circadian rhythm, which is adjusted or entrained to the environment by **external cues**, known as Zeitgebers (a German word meaning "time-givers"), the most important of which is **daylight**. The brain's internal circadian clock (also known as the **biological clock**, **body clock**, **circadian pacemaker**, **circadian system**, **circadian oscillator**, etc), which is centered in the hypothalamus region of the basal forebrain, uses these Zeitgebers to naturally synchronize or reset itself each day to within just a few minutes of the Earth's 24-hour rotation cycle (the word "circadian" comes from the Latin words meaning "about a day").

Early research in the 1960s and 1970s (including some famous **experiments in caves**) had concluded that the natural "free-running" circadian period of human beings was around 25 hours, not the expected 24 hours. However, later research (like that of **Charles Czeisler** *et al* in 1999) showed that these experiments were flawed, and that even the presence of electric lighting was enough to skew the results. It is now clear that, although individual circadian periods do vary – ranging between 23.5 and 24.5 hours in humans, dependent on variations in the person's PER or period gene – they have a mean of around 24.2 hours, just slightly more than the Earth's rotation. About 25% of people have a circadian period which is slightly less than the 24-hour day, and 75% have a circadian period slightly more than 24 hours.

The brain's circadian clock regulates sleeping and feeding patterns, alertness, core body temperature, brain waveactivity, hormone production, regulation of glucose and insulin levels, urine production, cell regeneration, and many other biological activities. The most important hormones affected by the circadian clock, at least insofar as they affect sleep, are melatonin (which is produced in the pineal gland in the brain, and which chemically causes drowsiness and lowers body temperature) and cortisol (produced in the adrenal gland, and used to form glucose or blood sugar and to enable anti-stress and anti-inflammatory functions in the body).

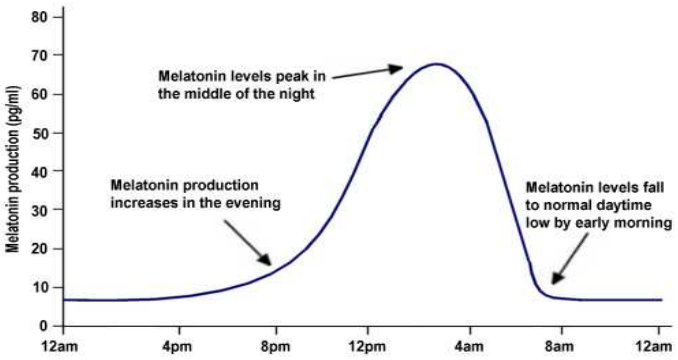
Growth hormone, essential to the repair and restoration processes of the body, is also secreted during sleep, particularly during deep non-REM sleep, as are other hormones like **testosterone**. Thyrotropin (or **thyroid-stimulating hormone**), on the other hand, is actively inhibited or suppressed during sleep. However, unlike melatonin and cortisol (which are almost entirely dependent on the circadian clock, regardless of whether an individual actually sleeps or not), these hormonal effects appear to be regulated by actual sleep and not by circadian rhythms *per se*.



The human biological circadian clock (image from Wikipedia)

Humans are diurnal animals, naturally active during the daytime, and our circadian rhythms reflect this. Generally speaking, for sleep to occur in the "right" part of the circadian cycle, the time of minimum core body temperature and maximum melatonin concentration should occur towards the end of the sleep period. As a rough guide, **core temperature** usually reaches its minimum around 4:30-5:00am in the morning in human adults, and melatonin (normally completely absent during daylight hours) typically begins to be produced around 8:00-9:00pm at night and stops around 7:00-8:00am in the morning (see diagram below). The deepest tendency to sleepiness occurs in the middle of the night, around 2:00-3:00am, along with a shorter and shallower period of sleepiness (often referred to

as the "post-lunch dip") about twelve hours later, around 2:00-3:00pm in the afternoon.



Melatonin production (image by Luke Mastin)

Physically, the circadian clock is located in the suprachiasmatic nucleus (SCN) in the hypothalamus of the brain, one in each brain hemisphere. The SCN is a tiny pinhead-sized area, containing just 20,000 or so very small neurons, but it has the responsibility for sending signals to several other parts of the brain to regulate the daily sleep-wake cycle, body temperature, hormone production and other functions. In fact, the individual neurons that make up the SCN have been found to exhibit a near-24-hour rhythm of activity, suggesting that the clock mechanism actually works on a **sub-cellular level**. When dissociated from the SCN, the individual cells follow their own intrinsic 24-hour rhythms, but, when incorporated into the SCN, they all fire in **synchrony**. In experiments on mice where the SCN is completely removed, the mice (which are normally much more active during the nighttime and sleep more during the day) show little or no preference for their active time and sleep time, and their activity is sporadic and apparently random throughout the day and night.

The circadian clock checks its accuracy each day using external Zeitgebers, principally the light-dark cycle. Exposure to natural daylight stimulates a nerve pathway from special photoreceptive ganglion cells in the retina of the eye, cells that are totally separate from the rods and cones our eyes use to generate our everyday image of the world. These cells contain a unique light-sensitive pigment called melanopsin, and are most sensitive to short wavelength "blue light". Even many blind people can respond to these light-dark cues, as the photoreceptive cells in their eyes can usually recognize daylight, even through closed eyelids. The light-dark signals are sent via the optic nerve to the suprachiasmatic nucleus, which uses them to reset its own circadian clock each day.

The biological clock does not actually require light to function, and the circadian cycle persists quite accurately even when individuals are completely cut off from daylight. The light-dark cycle (in concert with other Zeitgebers like meals, ambient temperature, etc), merely acts as an external cue to resynchronize or **entrain** the timing of biological rhythms, and to prevent small timing errors from accumulating. Without this important check, the circadian system can become seriously unbalanced. For example, the much dimmer illumination of artificial lights is not usually sufficient to trigger this reset of the circadian clock, which is why **night shift workers** never really fully adapt to their unnatural sleep patterns (see the section on Shift Work). It has been shown that simply increasing day-time lighting intensity in workplaces and care homes for the elderly can significantly improve their sleep regimes, reduce cognitive decline and improve mood disorders.

The irregular sleep patterns of **newborn babies** occur because circadian rhythms take some to develop, and most infants have established a more or less regular sleep-wake cycle by three to six months of age. Interestingly, some **Arctic animals** only show evidence of circadian rhythms during the times of year with more or less regular sunrises and sunsets (spring and fall), while others have been shown even to maintain their circadian rhythms through extended periods of sunlight or darkness. For people living in far northern locations, other Zeitgebers such as meal times, alarm times, house lights, etc. become relatively more important, so that people living in Alaska or northern Sweden can still function more or less normally during the long darkness of winter.

As well as regulating hormone production, body temperature, etc. the SCN also sends out an **alerting pulse** throughout the day (sometimes referred to as the circadian alerting system) which counteracts the increasing homeostatic sleep pressure. These alerting pulses from the SCN reach their peak about 2-3 hours before one's habitual bedtime (sometimes referred to as the "wake maintenance zone"), which serves to offset the homeostatic drive that has been continually accumulating throughout waking hours, allowing for continued alertness late into the evening. As the evening progresses, though, the SCN's alerting pulses start to weaken, melatonin production in the pineal gland increases (also under the direction of the SCN), and the "sleep gate" (also known as the **primary sleepiness zone** or **sleep onset zone**) opens, and the urge to sleep increases dramatically.

There are also other **secondary** or **peripheral** biological clocks throughout the body, such as in the liver, heart, pancreas, kidneys, lungs, intestines, and even in the skin and lymphocytes, all of which show natural daily oscillations. These organs are largely entrained independently by factors like the timing of meals, ambient temperatures, etc. rather than by the light-dark cycle, but the central coordination and synchronization of these secondary body clocks is still carried out by the suprachiasmatic nuclei. The main circadian system in the SCN in turn receives multiple feedbacks from these various organs, in a complex system of reciprocal interactions. Chronobiology, the relatively new science of timing medical attention to various organisms of the body depending on the most propitious time of day for those particular organs, has shown very good results in improving the effectiveness of treatments.

In recent years, particular genes have been identified as being involved in the circadian cycle, and it is no surprise to find that these genes are particularly active within the cells of the suprachiasmatic nuclei, as well as within the cells of other body tissues. Scientists now estimate than between 8% and

15% of the genes in the human body operate on a 24-hour cycle. The very similar sleep architecture of closely-related individuals (especially identical twins) demonstrates the strong genetic element in sleep, and certain genes – including CLOCK, BMAL, PER, TIM and CRY, among others – have been specifically identified as being involved in the sleep process, although the exact mechanism through which they regulate sleep is still being explored. Mutations in these genes have been associated with several different sleep disorders.

Circadian rhythms may be adjusted by up to two hours or so either way according to an individual's chronotype. Some people (often known as **"larks"** or **morning people**) tend to wake up early and are most alert during the first part of the day. Others (**"night owls"** or **evening people**) are most alert in the late evening and prefer to go to bed late. By some estimates, as many as 20% of people fall into one of these two categories. In these people, the timing of their circadian period is shifted completely (an effect that is at least partly encoded in their genes), so that morning people wake at a later stage in their circadian day, and are therefore much more alert on waking; evening people, on the other hand, wake too early in their circadian day, and so are less alert and perform poorly in the morning. Typically, this variation is limited to a couple of hours earlier or later than the average; those with extreme body clocks may have difficulty participating in normal work, school or social activities, and are considered to suffer from circadian rhythm sleep disorder (see the section on Sleep Disorders).

Source: https://www.howsleepworks.com

Recent News from Leading Daily

Safety Workshop organized by Confederation of Indian Industries (CII). Part of organizing committee Mr. K N Sen (President ASSP India Chapter) addressed this workshop.

Report published in "BARTAMAN" a Bengali Daily, on 09.08.2018

'Importance of safety compliances in workplaces for avoiding accident' emerged as a key issue during discussions in a safety workshop organized by CII. This workshop started on Wednesday. Various industries are participating in it. Krishna Nirmalya Sen, Co-chairman of the Safety Taskforce CII Eastern Region, mentioned that the safety systems have gone through significant improvements in the recent times. It is not really necessary to spend a lot of money for implementation of these systems. All stake-holders need to come forward and cooperate. However safety concepts should not be kept confined to factories. We need to create social awareness, then only overall safety compliance level will improve, he said.

(translated)

সুরক্ষা বিধি মেনে কাজের কথা উঠে এল কর্মশালায়

নিজস্ব প্রতিনিধি, কলকাতা: কর্মক্ষেত্রে দুর্ঘটনা এড়াতে সুরক্ষা বিধি মেনে কাজ করার কথা উঠে এল সিআইআই আয়োজিত এক কর্মশালায়। বুধবার এই কর্মশালার সূচনা হয়েছে। তাতে অংশ নিয়েছে বিভিন্ন শিল্প সংস্থা। সিআইআই ইস্টার্ন রিজিয়ন সেফটি টাস্কফোর্সের কো-চেয়ারম্যান কৃষ্ণনির্মাল্য সেন বলেন, সুরক্ষা ব্যবস্থা আগের চেয়ে বর্তমানে অনেক উন্নত হয়েছে। এই ব্যবস্থা রূপায়ণে যে অনেক টাকা ব্যয় করতে হবে, তা নয়। সব পক্ষকেই এগিয়ে আসতে হবে। তবে সুরক্ষার ধারণা শুধু কারখানার মধ্যে সীমাবদ্ধ রাখলে চলবে না। এ নিয়ে সামাজিক সচেতনতা দরকার। তবেই সার্বিকভাবে সুরক্ষার মান উন্নত হবে বলে জানিয়েছেন তিনি।

Selected portion from "American Society of Safety Professionals brand guidelines – For Developing Communications" 2017

Brand Promise

Overview

Our brand promise is a statement of our differentiation. It tells our audience how they benefit from our services. As it relates to our work, our brand promise acts as the foundation for successfully communicating our brand.

In order for us to continue to distinguish ourselves in the minds of our audience, it is crucial that we present our brand clearly and consistently across all communication channels. Utilize this brand promise as a guide for effectively communicating our brand message.

Who are we?

ASSP is a global association for occupational safety and health professionals.

What do we do?

We provide education, standards development, advocacy and a professional community to support the advancement of our members and the profession as a whole.

Why does it matter?

Our members are dedicated to creating safe work environments by preventing workplace fatalities, injuries and illnesses. Sound safety practices are both socially responsible and good business, leading to increased productivity, a better reputation and higher employee satisfaction.

AMERICAN SOCIETY OF SAFETY PROFESSIONALS

WELCOME

Member joined with ASSP India Chapter in July 2018

Name : Digantika Ghosh (M. Tech, NEBOSH IGC, CSAP)

Organization: L&T Hydrocarbon Engineering

Current Profile: Manager HSE & Sustainability

HSE Quiz

1. The toxic chemical which caused Bhopal disaster from Union Carbide plant was:

A Methyl Isocarbamate
B Methyl Isocyanate
C Methyl Isocyanide
D Methyl Isocyanurate

2. Why Acetylene cylinders should be stored upright?

A Proper controlling of acetylene pressure
B For proper securing
C To prevent liquid acetone from escaping
D Both B & C

3. The technique that selects the undesired outcome and all possible way of occurrence is:

A Fault Tree Analysis
B Event Tree Analysis
C Failure Mode and Effect Analysis
D Hazard Analysis

4. While selecting a dispersion model it is important to consider the:

A Actual characteristic of local geography
B Point of release related to wind velocity
C Limitation and assumption of the model
D Point of release related to wind direction

5. Which variable is not consider while measuring the risk value of given hazardous event?

A Unanticipated loss
B Likelihood
C Frequency
D Exposed people / systems

Watch out the next issue for correct answer

Answers from last issue's (July / 2018) Quiz: 1 (A); 2 (D); 3 (D); 4 (C); 5 (B)

You are welcome to send your inputs to: Sandip Mukherjee; e-mail: newsletter@india.asse.org; Phone: +91 9829600067

Selected articles shall be published in next publication

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Mr. K. N Sen, President; email: krishnanirmalya@gmail.com; Phone - +91 9444399208

Mr. V Janardhanam, Secretary; email: vjana05@gmail.com ; Phone: +91 9500079757

For more information please visit our website - http://india.assp.org